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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,031	07/30/2003	John M. Page	10030673-1	7771

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EXAMINER

BARTON, JONATHAN A

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 04/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,031	PAGE ET AL.	
	Examiner	Art Unit	
	Jonathan Barton	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the amendment filed by Applicant on 2/10/2006.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5, 10-13, 15, 18 and 19 are rejected under 35 U.S.C. 102(b) as being unpatentable over Olson (US 2001/0032300) in view of Knothe et al. (US 4,811,293).

a. As for claim 1 Olson discloses

i. Starting a write filter that intercepts writes to the protected memory locations and stores the writes in a cache (Par. 23 Lines 11-16 and Par.

28 Lines 1-10);

ii. Starting a state machine with at least a change state and a normal state (Par. 35 & Fig. 1c);

iii. Upon starting the state machine, entering the change state when an indication is present that data needs to be persisted to the protected memory otherwise entering the normal state (Par. 35, Fig. 1c Steps 22, 24 and 26);

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- iv. In the normal state identifying requests for critical writes to the protected memory and creating at least one update file (Par. 33) describing the critical writes (Par. 28);
 - v. In the change state, applying the changes in the update file and rebooting the system in a manner that persists the changes to the protected memory (Par. 35 Fig. 1c steps 26 & 28).
- b. Olson fails to disclose the following limitation, which is taught by Knothe:
 - vi. The critical writes are not persisted to the protected memory locations (Col. 1 Lines 48-62) during the normal state (Col. 1 Line 63 – Col. 2 Line 1).
 - vii. It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the normal “with write protection” state taught by Knothe with the memory location protection disclosed by Olson because both systems involve protecting memory locations, and both systems utilize “write-protection states” in order to accomplish the correct protection and access. Further, Knothe’s method provides a default protection state in order to increase the data security level. Although Knothe’s method utilizes a mechanical switch to go between the two states, the teaching of the two states and their operation is pertinent and applicable when combined with Olson’s disclosed system and method.
- c. As for claim 2 Olson discloses

- viii. Emptying the cache upon startup of the embedded system (Par. 35, Fig. 1c).
- d. As for claim 3 Olson discloses
 - ix. Running applications of the embedded system in the normal state (Par. 35 & 37); and
 - x. Not running the applications of the embedded system in the change state (Par. 35 & 37).
- e. As for claim 4 Olson discloses
 - xi. Determining whether the application of the changes was successful (Par. 35, Fig. 1c step 26);
 - xii. If the application of the changes was not successful, deleting the update files, erasing the indication, issuing a command to empty the cache, and rebooting the embedded system (Par. 35, Fig. 1c steps 26, 28 and 30, path/state 2);
 - xiii. If the application of the changes was successful, issuing a command to persist the cache deleting the update files, erasing the indication and rebooting the system (Par. 35, Fig. 1c steps 26 & 30, path/state 1).
- f. As for claim 5 Olson discloses
 - xiv. In the normal state when an update file is created, creating an indication that data needs to be persisted to the protected memory is set (Par. 34).

g. As for claim 10 Olson discloses [and Knothe teaches]:

xv. A processing unit responsive to an operating system for executing applications to perform the functions of the embedded system (Par. 21, Line 1);

xvi. A main memory location storing the operating system of the embedded system (Par. 27), said operating system providing a write filter that protects the operating system from writes (Par. 23 Lines 11-16 & Par. 28 Lines 1-10);

xvii. A secondary memory location for storing software and data (Par. 27, Par. 28 Lines 10-13); and

xviii. A control program that executes automatically upon booting of the system (Par. 27), said control program causing the embedded system to operate in a normal state and a change state (Par. 35, Fig. 1c), wherein:

(1) During operation in the normal state, the applications are run and when a critical write to the operating system is requested, [*the critical write is not persisted to the operating system but (Knothe Col. 1 Lines 48-62)*] an update file (Par. 32 & 33) is generated to store the critical write until the embedded system enters the change state (Par. 28); and

(2) During operation in the change state, no applications are run and the update file is used to update and persist the operating system (Par. 35 Fig. 1c step 26).

- h. As for claim 11 Olson discloses
 - xix. A normal state in which application are executed (Par. 35, Fig. 1c step 24)
 - xx. And a write filter intercepts writes to a protected memory location and redirects them to a non-protected memory location (Par. 28);
 - xxi. And a change state, entered across a boot from the normal state (Par. 35 Fig. 1c step 26)
 - xxii. In which the writes applied to the write filter during the last normal state are re-applied to the write filter and subsequently persisted to the protected memory (Par. 35 Fig. 1c step 28),
- i. while Knothe teaches
 - xxiii. the writes to the memory location are not applied to the protected memory location (Col. 1 Lines 48-62) during the normal state (Col. 1 Line 63 – Col. 2 Line 1).
- j. As for claim 12 Olson discloses
 - xxiv. Applications are not run during the change state (Par. 35, *the change state occurs prior to the full system boot and program normal program launches*).
- k. As for claim 13 Olson discloses
 - xxv. Only critical writes are applied to the write filter and persisted in the changed state (Par. 11 steps b & c).
- l. As for claim 15 Olson discloses

xxvi. Writes intercepted by the write filter in the normal state are copied to at least one update file and in the change state the at least one update file is used as the source for re-applying the write to the write filter (Par. 33 and 35).

m. As for claim 18 Olson discloses

xxvii. The change state is entered subsequent to a boot when indicators of updates are present (Par. 35 Fig. 1c step 22 & 26).

n. As for claim 19 Olson discloses

xxviii. Once all updates have been persisted, the state machine enters the normal state (Par. 35 Fig. 1c steps 22 & 24).

2. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olson (US 2001/0032300) in view of Knothe et al. (US 4,811,293) and further in view of Aviani, Jr. (US 5,950,205).

o. As for claim 6 the combination of Olson and Knothe discloses the depended upon claim 5, but fails to disclose

xxix. The step of creating an indication comprises writing the file name of the update file to a data file.

xxx. Aviani Jr. teaches this (Col. 2 Lines 37-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the file name teaching taught by Aviani Jr. in conjunction with the filtered write system of Olson and Knothe, because this method of

identifying files is very common within the art and it would have been an obvious matter of engineering choice to employ it in Olson's system.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olson (US 2001/0032300) in view of Knothe et al. (US 4,811,293) and further in view of Xian et al. (US 6,327,584).

p. As for claim 7 the combination of Olson and Knothe discloses the depended upon claim 1, but fails to disclose the following limitation, which is taught by Xian:

xxxi. The step of creating an update file further comprises naming the update file using a time stamp (Xian Col. 8 Lines 36-50).

xxxii. It would have been obvious to one of ordinary skill in the art to have combined the file-name-timestamp taught by Xian with the filtered write system of Olson and Knothe because Olson has expressly taught the use of unbuffered writes using transactional data to include "updating a file" (Olson Par. 40) and Xian's timestamp naming provides files having the same filename prefix that can be distinguished (between current and outdated files) in to the most recently updated version via the timestamp extension portion of the filename (Xian Col. 8 Lines 28-35).

4. Claims 8, 9, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olson (US 2001/0032300) in view of Knothe et al. (US 4,811,293) and further in view of Hill et al. (US 2003/0221083).

q. As for claim 14 the combination of Olson and Knothe discloses the depended upon claim 13, but fails to disclose

xxxiii. The critical write include writes to a system registry.

xxxiv. Hill et al. teach this (Par. 4 & 27). It would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the critical registry data taught by Hill et al. with the filtered write system of Olson and Knothe, because both systems utilize a filtered write method to operate updates on the system, and updating registry information using the secure method of Olson would add system stability in the event of system updates.

r. As for claim 16 Olson discloses the depended upon claim 11, but fails to disclose

xxxv. During the change state updates to an operating system of the embedded system are applied and persisted.

xxxvi. Hill et al. teach this (Par. 32).

s. As for claim 8 Olson discloses the depended upon claim 1, while Hill et al. teach

xxxvii. In the change state, if an update executable exists running said update executable (Par. 5).

- t. As for claim 9 Olson discloses
xxxviii. Putting the state machine in a sleep mode during the execution of
the update executable (Par. 35).
- 5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Olson
(US 2001/0032300) in view of Raves et al. (US 2003/0182500).
 - u. As for claim 20 the combination of Olson and Knothe discloses the
depended upon claim 11, but fails to disclose
xxxix. The protected memory location stores an operating system of the
embedded system.
 - xl. Raves et al. teach this (Par. 2, & Par. 5-7). It would have been
obvious to one of ordinary skill in the art at the time of the invention to
combine the protected O.S. taught by Raves et al. with the filtered write
system of Olson and Knothe because both system utilize a filtered write
method and have protected areas of memory and protecting the operating
system in Olson's system would increase the reliability of the operating
system and therefore the overall system as well.

Response to Arguments

- 6. Applicant's arguments with respect to claims 1-20 (Rejections under 35 USC 102
and 103) have been considered but are moot in view of the new ground(s) of rejection.

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The amendments to the claims distinguished them from the original prior art of record, but fails to distinguish them from the newly discovered prior art.

7. Applicant's arguments/amendments with respect to the claim objections of claims 10, 11 and 14 are satisfactory and the objections have been withdrawn.

8. Applicant's arguments/amendments with respect to the 35 USC 112 second paragraph rejection of claim 1 is satisfactory and the rejection has been withdrawn.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Barton whose telephone number is 571-272-8157. The examiner can normally be reached on Monday - Friday 8:30 - 5:00.

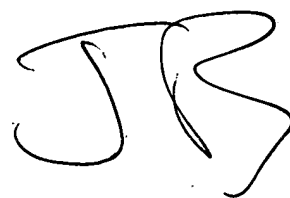
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

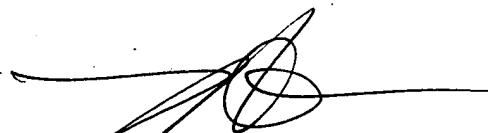
Jonathan Barton

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Examiner
Art Unit 2186



JB



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